

Claims

1. A method for determining the activity range of a test compound, which modulates the uptake of serotonin by a serotonin reuptake transporter, against a secondary target, said method comprising the steps of:

(a) contacting a first nematode expressing a mutated CeSERT polypeptide, wherein said mutated CeSERT polypeptide has a reduced capacity to take up serotonin relative to wild-type, with said compound;

(b) assaying a defined behavior of said first nematode;

(c) assaying said defined behavior of a second nematode not contacted with said compound; and

(d) comparing said defined behavior of said first nematode to that of said second nematode, wherein a difference in said defined behavior between said first and second nematode indicates that said compound has a secondary target.

2. The method of claim 1, wherein steps (a) to (d) are repeated using first and second nematodes selected from a panel of nematodes expressing mutant CeSERT polypeptides, wherein said mutant CeSERT polypeptides differ from said mutated CeSERT polypeptide of step (a).

3. The method of claim 1, wherein said mutated CeSERT polypeptide is a complete loss-of-function.

4. The method of claim 1, wherein said method comprises a liquid locomotion assay.

5. The method of claim 1, wherein said defined behavior is movement, pharyngeal pumping, egg-laying, nose contraction, or defecation.

6. The method of claim 1, wherein said mutated CeSERT polypeptide is selected from the group consisting of a CeSERT(*n822*) polypeptide, a CeSERT(*n823*) polypeptide, and a CeSERT(*n3314*) polypeptide.

7. The method of claim 1, wherein said compound is from a class of compounds selected from a group consisting of antidepressants, migraine medications, and anti-emetics.

8. The method of claim 7, wherein said antidepressant is a selective serotonin reuptake inhibitor.

5 9. The method of claim 7, wherein said antidepressant is a tricyclic antidepressant.

10. The method of claim 7, wherein said antidepressant is a monoamine oxidase inhibitor.

10

11. The method of claim 1, wherein said test compound is administered at more than one concentration.

15